

SYLLABUS COURSE DESCRIPTION

COURSE TITLE	Database Management Systems
COURSE CODE	76213
SCIENTIFIC SECTOR	INF/01
DEGREE	Bachelor in Computer Science
SEMESTER	2nd
YEAR	2nd
CREDITS	6
TOTAL LECTURING HOURS	40
TOTAL LAB HOURS	20
PREREQUISITES	Students should be familiar with basic concepts in databases (including relational databases, SQL, and relational algebra) and algorithms and have decent programming skills. This material is taught in the following courses: Introduction to Databases, Data Structures and Algorithms, Computer Programming.
COURSE PAGE	https://ole.unibz.it/
SPECIFIC EDUCATIONAL OBJECTIVES	<p>Type of course: “caratterizzanti” Scientific area: “discipline informatiche”</p> <p>Based on the concepts gained in the introductory database course, students will develop a deeper understanding of how database management systems work. Specifically, students will learn basic and advanced techniques and methods used in database management systems to store and index data, to efficiently process concurrent user queries and to keep the data safe and consistent.</p>

LECTURER	Johann Gamper
SCIENTIFIC SECTOR OF THE LECTURER	INF/01
TEACHING LANGUAGE	English
OFFICE HOURS	Tuesday, 13:00-14:00 POS 2.15
TEACHING ASSISTANT	Johann Gamper
OFFICE HOURS	Tuesday, 13:00-14:00 POS 2.15
LIST OF TOPICS COVERED	<ul style="list-style-type: none"> • Physical data storage • Indexing and hashing • Query processing and optimization • Transaction processing • Concurrency control • Recovery
TEACHING FORMAT	Frontal lectures interleaved with exercises, and labs with exercises.

LEARNING OUTCOMES	<p>Knowledge and understanding</p> <ul style="list-style-type: none"> • know in detail basic and advanced methods and techniques of relational database management systems; <p>Applying knowledge and understanding</p> <ul style="list-style-type: none"> • be able to apply the own knowledge about database management systems to develop efficient database applications; <p>Ability to make judgments</p> <ul style="list-style-type: none"> • be able to evaluate existing database technologies; <p>Ability to learn</p> <ul style="list-style-type: none"> • be able to learn the innovative features of state-of-the-art database technologies and to follow the fast technological evolution in the field;
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ASSESSMENT	<p>The assessment of the course consists of a single written exam at the end.</p> <p>The exam consists of verification questions, transfer of knowledge questions, and exercises.</p>
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	The exam will assess the learning outcomes related to knowledge and understanding using verification questions, the learning outcomes related to applying knowledge and understanding using transfer of knowledge questions and exercises.
ASSESSMENT LANGUAGE	English
EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS	The written exam counts 100% of the grade. The exam is evaluated according to the following criteria: clarity, completeness and correctness of answers.
REQUIRED READINGS	Silberschatz, Korth, Sudarshan: <i>Database System Concepts</i> , 5 th edition (or later), McGraw Hill, 2006.
SUPPLEMENTARY READINGS	Garcia-Molina, Ullman, Widom: <i>Database Systems: The Complete Book</i> , Prentice-Hall 2002.
SOFTWARE USED	Postgres, PgAdmin